# Alcohol consumption among high-risk Thai youth after raising the legal drinking age

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## ARTICLE INFO

## ABSTRACT

*Objective:* Methamphetamine and alcohol are the leading substances abused by Thai youth. In 2008 the government passed laws that limited alcohol availability and increased the legal drinking age from 18 to 20. We assessed whether the law reduced drinking among methamphetamine-using 18–19 year olds in Chiang Mai.

*Method:* The study compares drinking patterns among methamphetamine smokers aged 18–19 years ($n = 136$) collected prior to the legal changes, to a comparable post-law sample ($n = 142$). Statistical tests for differences between the pre- and post-law samples on problem drinking and recent drinking frequency and drunkenness were conducted. Logistic regression modeled the relative odds of frequent drunkenness, controlling for demographic characteristics.

*Results:* A high prevalence of problematic drinking was present in both samples, with no difference detected. The post-law sample reported a significantly higher median days drunk/month (9 vs. 4, $p \leq 0.01$); in adjusted analysis, frequent drunkenness (>5.5 days/month) was more common in the post-law compared to pre-law period in the presence of other variables (AOR: 2.2; 95%CI: 1.3, 3.9). Post-law participants demonstrated a low level of knowledge about the law's components.

*Conclusions:* The study suggests that the new laws did not reduce drinking among high-risk, methamphetamine-smoking 18–19 year olds; rather, the post-law period was associated with increased drinking levels. The data indicate that the law is not reaching high-risk under-aged youth who are at risk of a number of deleterious outcomes as a result of their substance use.

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## 1. Introduction

As is the case throughout the world, alcohol is the most widely abused substance among adolescents and young adults in Thailand. Based on a national survey of school students, it is estimated that one in four men and one in seven women consumed alcohol in the past year, while roughly 10% of men and 4% of women reported binge drinking in the past month (Assanangkornchai et al., 2009). In a national household study, 18% and 7% of men and women, respectively, aged 12–19 years report drinking in the past 12 months; among these, 5% and 3% reported drinking daily (Assanangkornchai et al., 2010). The public health burden of alcohol consumption in Thailand is not minor; alcohol plays a role in 90% of road casualties in Thailand, resulting in 37 lost lives per day (National Economic and Social Development Board, 2005). In the general population,

12.1% of all Disability-Adjusted Life Years (DALYs) among men and 1.2% of DALYs among women are due to alcohol consumption (Rehm et al., 2009).

Methamphetamine (MA) use is as common as alcohol use among young men and women in the general population in some regions of Thailand (Ruangkanchanasetr et al., 2005). MA is the most commonly used illegal substance in Thailand (Verachai et al., 2001; Farrell et al., 2002), with the estimated number of MA users having increased from 850,000 in 1999, to more than 2.5 million in 2002 (Thailand Narcotics Annual Report, 2003). The largest increase was among males aged 12–24. MA smoking in Thailand has reached epidemic proportion among young Thais (Farrell et al., 2002; Melbye et al., 2002; Sattah et al., 2002; Razak et al., 2003), and MA has been shown to be independently associated with a number of deleterious sexual (i.e., inconsistent condom use, multiple sex partners) and other risk behaviors such as fighting and motorcycle accidents; Kipke et al., 1995; Molitor et al., 1998; McNall and Remafedi, 1999; Nemoto et al., 2002).

Concurrent alcohol use among MA users is common and may lead to greater harm for those engaging in both behaviors. A study conducted among adolescents in Chiang Rai ($n = 1725$) found that

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alcohol consumption in the past three months was associated with a four-fold greater odds of MA use after controlling for other factors (Sattah et al., 2002); similarly, young people who consumed alcohol were more likely to use illicit substances in a national survey of students (Assanangkornchai et al., 2009). In our previous work among Chiang Mai youth aged 18–20 years with a history of MA use and heavy alcohol consumption, we found alarmingly high rates of sexually transmitted infections (24% positive for Chlamydia and 6% positive for gonorrhea; Celentano et al., 2008), higher subsequent depressive symptoms among current MA users (Sutcliffe et al., 2009), and higher risk of incarceration for MA users who consumed alcohol (Sherman et al., 2010).

Governments worldwide have imposed regulations in an effort to reduce both the demand and negative outcomes associated with alcohol consumption, particularly among youth (McCartt et al., 2010, 2009). In Thailand, the rise in morbidity and mortality associated with high rates of underage alcohol consumption prompted the passage of new laws in February 2008 that govern both alcohol availability and increasing the legal drinking age from 18 to 20 years old. The laws ban certain alcohol advertisements, restricted selling hours for alcohol, and prohibited alcohol sales as well as consumption in educational, religious, and recreational venues as well as government offices and public parks (Alcohol Beverage Control Laws, 2008). The laws describe alcohol as a threat to "health and family" which "affect the overall social and economic condition of the country," and aims to reduce these negative impacts by protecting children and youths against easy access to alcohol beverage (Alcohol Beverage Control Laws, 2008, p. 13).

Structural and economic changes such as increasing the legal drinking age, restricting alcohol availability, price increases through taxation, reduction in alcohol advertising, and restrictions on alcohol availability have successfully reduced youth alcohol consumption (Kuo et al., 2003; Makowsky and Whitehead, 1991; Treno et al., 2003). However, such interventions may not impact high-risk youth, like MA users, in the same manner. The effect of such broad structural interventions targeting alcohol consumption among high-risk youth has not been previously examined in the Southeast Asian setting. The current study compares drinking patterns among 18–19 year old MA users prior to and after the legal changes, by examining if the legal changes are associated with reduction in problem drinking, frequency of drinking and frequency of drunkenness among these high-risk youth. We also report additional alcohol related knowledge and behaviors among these youth after the laws were enacted. Given the deleterious impact and pervasiveness of both MA and alcohol use, we were interested in exploring how the legal changes specifically impacted MA-using youth.

## 2. Methods

### 2.1. Sample recruitment

The study population comprises samples recruited before (referred to as "pre-law") and after (referred to as "post-law") the implementation of the Alcohol Beverage Control laws in February 2008. The pre-law sample was recruited as a part of randomized behavioral trial examining the effect of peer-educator, network-oriented intervention on HIV risk behaviors and sexually transmitted infections, and has been described in detail previously (Sherman et al., 2009). Between April 2005 and June 2006, pre-law participants were recruited from bars, restaurants, nightclubs, and karaoke clubs. Recruitment sites were informed by an extensive 18-month formative, ethnographic research stage prior to the development and implementation of the trial (German et al., 2006; Sherman et al., 2008).

Index participants were eligible for the parent trial if they were between the ages of 18 and 25 at screening, used methamphetamine at least three times and had sex at least three times in the past three months, and were able to enroll at least one of their sex or drug network members in the study within 45 days of screening. Participants were excluded if they refused to have blood drawn or provide urine, if they were enrolled in another prevention study, or if they refused to provide locator information. Of 1263 young adults screened, 1189 were eligible (94%) and 983 (78%) were enrolled (415 index participants and 568 members of their drug and/or sexual networks aged 18–25 years). For the pre-law comparison group in the current study, we used data from the baseline pre-intervention visit from randomly selected 18 and 19 year old index participants ($n = 136$) who were matched on gender with the post-law sample ($n = 142$).

The post-law sample was recruited between March and June 2010 through methods parallel to those used for the pre-law recruitment. Twenty-seven pre-law study participants were contacted to verify the usefulness of recruitment venues used in the pre-law sample as well as to provide additional recruitment venues for MA using youth. The inclusion criteria were the same as those described above. Both studies were approved by the Institutional Review Board (IRB) at Johns Hopkins Bloomberg School of Public Health and the Human Experimentation Committee at the Research Institute for Health Sciences, Chiang Mai University.

### 2.2. Data collection

Pre-law survey data were collected via an interviewer-administered survey, which included questions on the participant's sociodemographic background, substance use and alcohol history, sexual history, and involvement in the drug economy. Post-law survey data were collected by interviewers on a personal digital assistant (PDA) and ascertained questions on participant's sociodemographic background, substance use and extensive alcohol history. Participants in both studies were compensated 200 baht ($5 USD) for completing the survey and providing a urine sample.

### 2.3. Measures

The outcome of interest, alcohol consumption, was measured by the total number of days in the past 30 days that the participant reported drinking alcohol (frequency of drinking in the past month; drinking days/month) and the total number of days in the past 30 days that the participant reported being drunk from alcohol (frequency of drunkenness in the past month; drunken days/month). Problems with alcohol were measured using the four-item Cut down, Annoyed, Guilty, Eye-opener (CAGE) tool, using the standard cutoff of two or greater (Ewing, 1984). MA use was measured as the frequency (days) of MA use in the past month.

Socio-demographic characteristics of interest included age, religion, education level, student status, residence (living with family versus elsewhere), and average monthly income over the past three months were collected for both samples. For the post-law sample only, we additionally asked about knowledge of the legal restrictions, source of alcohol, preferred drinking locations, and possession of a fake ID.

### 2.4. Statistical analysis

Sample socio-demographic composition is reported and the pre- versus post-law samples are compared using chi-square tests for categorical variables. Monthly income and frequency of MA use were categorized into tertiles based on the combined sample. Median and interquartile range values (IQRs) are reported for